has.

A-3 cont.

15. [original] The apparatus of claim 13 wherein said head end cherry picker multiplexer further comprises bandwidth recoders coupled to receive output data streams from said culling switch means and functioning to alter the bandwidth of each said output stream in accordance with instructions, and wherein said control means further comprises means for analyzing the bandwidth availability on each customer's DSL line and for controlling said bandwidth recoders accordingly.

REMARKS

Claims 1, 2 and 4-6 were rejected as anticipated by Laubach et al. (US 6,081,533), hereafter Laubach. In response to this rejection, claim 1 was amended to specify that the inputs are for receiving MPEG packets and/or IP packets that encode video programs and other services provided by servers coupled to these inputs. Laubach does not teach a headend controller that can receive, process and distribute MPEG packets or IP packets. Laubach teaches in Figure 7 and its accompanying text that the inputs to the headend controller receive Ethernet packets. Although Laubach teaches a video controller card 712. This card is mentioned only two times, and in neither place is its structure or capability described. There is no mention of receiving MPEG packets or receiving MPEG packets and encapsulating them into ATM cells. Laubach could not process MPEG packets directly because they are not switchable by regular IP or ATM switches and Laubach teaches an ATM switch 705 to distribute ATM packets to the various downstream channel transmitters. Laubach teaches as the output of the switch RF signals containing ATM cells. Claim 1 also had a recoder element added in each channel. Laubach is silent about recoder circuits or the problem such recoders solve. Claim 1 is therefore not anticipated.

Claim 2 depends from claim 1 and has been canceled since it covers what claim 1

has been amended to cover.

Claim 3 depends from claim 1 and is not anticipated for the same reasons claim 1 is not anticipated.

Claim 4 depends from claim 1 and is not anticipated for the same reason claim 1 is not anticipated. In addition, claim 4 has been amended to change its scope to cover the upstream reception apparatus that receives requests for video programs and services and authenticates the users who sent the requests to make sure they have valid subscriptions.

Claim 5 depends from claim 1 and is not anticipated for the same reasons claim 1 is not anticipated.

Claim 6 depends from claim 1 and s not anticipated for the same reasons claim 1 is not anticipated. In addition, claim 6 claims means for assembling output streams for maximum efficiency. This clause must be intepreted under 35 USC 112, paragraph 6 to cover the circuitry and software processes described in the specification that teach determining how many requests each customer has made and how many tuners that customer has and grouping all the requested programs, if possible, on no more than the number of channels matching the number of tuners the customer has. Laubach teaches no such circuitry.

Claims 7-15 have been rejected as obvious over the combination of Laubach and Schneidewend et al. (US 6,249,320), hereafter Schneidewend. Claim 7 adds to the pull multiplexer of claim 1 including a recoder to decompress and recompress to the available bandwidth, a programmed microprocessor to control the assembly of output streams so that the requests from each user are analyzed along with information on how many tuners the user has and the current availability of subchannels on then attempting to create the output streams so that all the video programs and services a user requested are transmitted on subchannels in a number of channels that do not exceed the number of tuners the user has. The term "logical channel" is intended to be interpreted to mean the channels that the user's receiver can receive that carry the subchannels or other logical channels. In other words, one receiver receives one logical channel which contains subchannels (such as on different PIDs, in different time intervals, on different spreading codes, etc.). Some persons skilled in the art call what we are calling logical channels simply channels or physical channels. The term is intended to encompass all these meanings, i.e., one receiver receives one logical channel, physical channel or

channel, whichever terminology one prefers.

Claim 8 is like claim 7 but adds the notion of moving or combining data being transmitted to other customers so as to make room on a number of subchannels on a number of logical channels that does not exceed the number of tuners the user has such that the programs and/or services the user requested can be transmitted to him on a number of logical channels that does not exceed the number of tuners the user has.

The combination of Laubach and Schneidewend do not teach a machine like claim 7 or claim 8 that can receive MPEG packet streams and IP packet streams, and receive upstream requests, and cull out packets that fulfill the received requests, decompress them and recompress them to the available bandwidth, and then assemble the packets for programs or services each user has requested into a number of logical channels that do not exceed the number of tuners a user has. Laubach teaches a headend that receives ethernet packets (containing ATM cells presumably), switches the ATM cells to the appropriate transmitter, modulates them onto RF signals and transmits them downstream. No mention of MPEG packet streams or culling out packets by PIDs or IP addresses is made in Laubach. No mention of decompression and recompression is made in Laubach. Schneidewend teaches a video processing system which uses two identification numbers in each program channel. One number identifies the information provider. The other identifies the subchannel on which the program is transmitted. The teachings of Schneidewend are directed to solving the problem of channel branding. Analog broadcasters may have substantial good will in their analog channel identity such as Fox 5, etc. and do not want to lose that channel identity even though they want to transmit multiple digital programs on subchannels within the same 6 Mhz spectrum previously devoted to sending only one analog TV program. Therefore, the two identification numbers are used in presenting information to the customer in menus so that the major channel such as Fox 5 is identified by the first identification number and the particular program and subchannel number is identified by the second identification number. This allows the channel brand to not be lost while allowing a customer to pick from different programs transmitted on the different subchannels within each major channel.

Significantly, there is no teaching in either Laubach or Schneidewend of organizing the output streams carrying the video programs and or services a particular user has requested into subchannels on a number of logical channels that match or at

least do not exceed the number of tuners that user has in his home gateway, if possible.

This problem is not recognized by either reference. When the prior art combination does not recognize the problem the claimed invention solves and the combination falls short of teaching all the apparatus and software needed to solve the problem, it is not fair to conclude the combination renders the claimed invention obvious.

Claim 13 defines a headend with a bank of DSL modems to transmit the downstream data and receive the upstream data. The DSL modems are coupled to the culling switches which are used to cull out MPEG video packets and P packets that bear the video programs and/or services each user requested. The video input data is in MPEG packet format. POTS telephone signal (analog) inputs are also coupled to the DSL modems. The combination of Laubach and Schneidewend does not teach nor suggest such a combination. There are no DSL modems, MPEG input transport streams or POTS inputs in the combination of Laubach and Schneidewend. As such, the combination falls short of the claimed invention.

Claim 14 depends from claim 13 and adds the notion of organizing the data transmitted on the DSL channels so as to not exceed the number of tuners the customer has. The combination of references does not teach nor suggest this.

Claim 15 depends from claim 13 and adds the notion of recoders to decompress and recompress to the available bandwidth. The combination of references does not teach nor suggest this.

Respectfully submitted,

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